Claims

Claims 1-32 (Cancelled)

33. (Withdrawn) Apparatus for casting thin reinforced concrete panels having a plurality of prestressed elongate tendons of a predetermined diameter extending therethrough, the apparatus comprising,

a mold having a bottom plate with a upper surface, a pair of spaced opposed side portions extending upwardly from said bottom plate and having upper edges, a pair of spaced opposed end portions extending upwardly from said bottom plate and having upper edges, said upper edges occupying a plane parallel to the upper surface of said bottom plate,

a first set of aligned slots defined in the end portions of the mold for receiving tendons extending therebetween,

a second set of aligned slots defined in the side portions of the mold for receiving tendons extending therebetween,

the first set of slots comprising a plurality of pairs of slots, each of said pairs of first set of slots comprising a first slot and a second slot, with the first slots each having a bottom surface spaced a first predetermined distance from the plate upper surface which is less than one half the distance between the bottom plate and said plane, the second slots each having a bottom surface spaced a second predetermined distance from the plate upper surface which is greater than one half the distance between the bottom plate and said plane, and the first and second slots in each pair are offset laterally from each other, and

the second set of slots comprising a plurality of pairs of slots, each of said pairs of said second set of slots comprising a third slot and a fourth slot, with the third slot having a bottom surface spaced a third predetermined distance from said plate upper surface which is less than one half the distance between the bottom plate and said plane, the fourth slot having a bottom surface spaced a fourth predetermined distance from said plate upper surface which is greater than one half the distance between the bottom plate and said plane, and the third and fourth slots of each pair are offset laterally from each other.

34. (Withdrawn) The apparatus of claim 33 further comprising first stressing mechanism mounted adjacent one of said side portions for prestressing a tendon extending between the side

portions, and second stressing mechanism mounted adjacent one of said end portions for prestressing a tendon extending between the end portions.

35. (Withdrawn) The apparatus of claim 33 wherein said plate upper surface and said plane are spaced apart a distance no greater than about 1.5 inches.

36. (Withdrawn) The apparatus of claim 35 wherein the bottom surface of each of said slots is spaced from said plate upper surface a distance no less than 1 1/2 times the diameter of said tendons.

37. (Withdrawn) The apparatus of claim 36 wherein the bottom surface of each of said slots is spaced from said plane a distance no less than 2 1/2 times the diameter of a tendon.

38. (Previously presented) A thin, reinforced concrete panel comprising substantially a rectangular body of concrete having a first face and an opposite second face, said faces being substantially parallel to one another; a pair of opposite side edges; and a pair of opposite end edges,

a first set of prestressed, parallel tendons extending through said body between said opposite end edges and perpendicularly to said end edges,

a second set of prestressed, parallel tendons extending through said body between said opposite side edges and perpendicularly to said side edges,

all of said tendons being of substantially the same diameter,

said first set of tendons comprising a plurality of pairs of tendons,

each of said pairs of said first set comprising a first tendon and a second tendon,

said first tendons being spaced a first predetermined distance from said first face of said body,

said second tendons being spaced said first predetermined distance from said second face of said body,

said first predetermined distance being less than one half the distance between said faces,

said first and second tendons of each pair being offset laterally from one another,

said second set of tendons comprising a plurality of pairs of tendons,

each of said pairs of said second set comprising a third tendon and a fourth tendon,

said third tendon being spaced a second predetermined distance from said first face of said body,

said fourth tendon being spaced said second predetermined distance from said second face of said body,

said third and fourth tendons of each pair being offset laterally from one another,

said second predetermined distance being greater than said first predetermined distance by an amount substantially equal to the said diameter of said tendons,

the pairs of tendons of said first set being spaced substantially equidistantly from each adjacent pair,

the pairs of tendons of said second set being spaced substantially equidistantly from each adjacent pair, and

each of said tendons being pretensioned to substantially the same tension.

39. (Previously presented) A concrete panel as set forth in claim 38, wherein said first face and second face are spaced apart a distance no greater than about 1.5 inches.

40. (Previously presented) A concrete panel as set forth in claim 39, wherein said tendons have a diameter no greater than about 1/8 inch.

41. (Previously presented) A concrete panel as set forth in claim 38, wherein said first face and said second face are spaced apart a distance no greater than about 1 inch.

42. (Previously presented) A concrete panel as set forth in claim 41, wherein said tendons have a diameter no greater than about 5/64 inch.

43. (Previously presented) A concrete panel as set forth in claim 38, wherein the tendons in said panel have a prestress sufficient to produce a prestress of about 250 psi in each direction in said body of concrete.

44. (Previously presented) A concrete panel as set forth in claim 38, wherein said tendons are wire ropes of substantially circular cross-section having a diameter no greater than about 1/10 the distance between said first and second faces.

45. (Previously presented) A concrete panel as set forth in claim 44, wherein each said first wire rope is spaced from said first face a distance of no less than about twice the diameter of said first wire rope.

46. (Previously presented) A concrete panel as set forth in claim 44, wherein each said second wire rope is spaced from said second face a distance of no less than about twice the diameter of said second wire rope.

47. (Previously presented) A concrete panel as set forth in claim 38, wherein the first face is textured.

48. (Previously presented) A thin, reinforced concrete panel comprising a concrete body having a first face and an opposite second face, a pair of opposite side edges and a pair of opposite end edges, the body having a first cross sectional area defined by the first and second faces and the opposite side edges and having a center of area defining a first centroidal plane extending between the side and end edges, a plurality of pairs of tendons extending through said body between the opposite side edges and positioned so that one of said tendons of each pair is spaced a first predetermined distance from the first centroidal plane proximate the first face and the other said tendons of each pair is spaced said first predetermined distance from the first centroidal plane proximate the second face,

the body has a second cross sectional area defined by the first and second faces and the end edges and having a center of area defining a second centroidal plane extending between the end edges and perpendicular to and co-planar with the first centroidal plane, and

a plurality of pairs of tendons extending through said body between the opposite end edges and positioned so that one tendon of each said pairs is spaced a second predetermined distance from the second centroidal axis proximate the first face and the other tendon of each of

said pairs is spaced said second predetermined distance from the second centroidal axis proximate the second face.

49. (Previously presented) A concrete panel as set forth in claim 48, wherein all of said tendons are of the same diameter and the second predetermined distance is greater than the first predetermined distance by an amount substantially equal to the diameter of said tension elements.

50. (Previously presented) A concrete panel as set forth in claim 48, wherein the tendons are first tendons, further comprising a plurality of spaced-apart second tendons extending through said body between the opposite side edges.

51. (Previously presented) A concrete panel as set forth in claim 48, wherein at least one pair of said pairs of tendons is formed positioning a single piece of material such that a loop and portions of the material overlap and cutting the material to define ends for each of said at least one pair of tendons.

52. (Currently amended) A thin, reinforced concrete panel comprising a substantially concrete body having a first face and an opposite second face, said faces being substantially parallel to one another and having a panel mid plane between said faces; a pair of opposite side edges; and a pair of opposite end edges,

a first set of prestressed, parallel tendons extending through said body between said opposite end edges,

a second set of prestressed, parallel tendons extending through said body between said opposite side edges,

said first set of tendons comprising a plurality of pairs of tendons,

each of said pairs of said first set comprising a first tendon and a second tendon,

said first tendons being positioned a first distance from said mid plane and between said mid plane and said first face of said body,

said second tendons being positioned a second distance from said mid plane and between said mid plane and said second face of said body,

said first and second tendons of each pair being offset laterally from one another,

said second set of tendons comprising a plurality of pairs of tendons,

each of said pairs of said second set comprising a third tendon and a fourth tendon,

said third tendon being positioned a third distance from said mid plane and between said mid plane and said first face of said body,

said fourth tendon being positioned a fourth distance from said mid plane and between said mid plane and said second face of said body,

said third and fourth tendons of each pair being offset laterally from one another, and

each of said tendons being pretensioned to substantially the same tension.

53. (Previously presented) The concrete panel of claim 52, wherein said first and second distances are unequal.

54. (Previously presented) The concrete panel of claim 52, wherein said third and fourth distances are unequal.

55. (Previously presented) The concrete panel of claim 52, wherein said first and second tendons in a pair of tendons are spaced apart and have a centerline therebetween and said centerline is offset a selected offset distance from the panel mid plane toward one of said faces of the panel.

56. (Previously presented) The concrete panel of claim 55, wherein said offset distance may be in a range up to 10% of the total thickness of the panel between said first face and said second face.

57. (Previously presented) The concrete panel of claim 52, which further comprises at least one connector element allowing said panel to be attached to an adjacent support structure.

58. (Previously presented) The concrete panel of claim 57, wherein said connecting element comprises a groove formed in an edge of said panel and adapted to receive a connecting clip attached to said support structure.

59. (Previously presented) The concrete panel of claim 57, wherein said connecting element comprises a threaded anchor at least partially imbedded in said concrete body.

60. (Previously presented) The concrete panel of claim 59, wherein said threaded anchor is internally threaded to receive a screw.

61. (Previously presented) The concrete panel of claim 57, wherein said connecting element comprises a support member connected to at least one tendon to position the support member during the process of casting the concrete panel, said support member having a bore extending therethrough with a central axis extending substantially normal to one of the first and second fees, and a screw plug having external threads thereon screwed into said bore with an internally threaded bore.

62. (Previously presented) The concrete panel of claim 61, wherein said screw plug has an outer end and said external threads permit adjustment of said screw plug in said bore to position said outer end substantially flush with an adjacent one of said first and second faces.